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Merging Critical Thinking and Information Literacy Outcomes - Making Meaning or Making Strategic Partnership?

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Merging Critical Thinking and Information Literacy Outcomes—Making Meaning or Making Strategic Partnerships?

Robert Schroeder

INTRODUCTION

Information literacy and critical thinking—what is the relationship? Many librarians have sensed a connection. When discussing the myriad literacies popularized in the 21st century Patricia Senn Brevik (2005, 23) states, "...information literacy is a kind of critical thinking ability; often the terms are used interchangeably." It is true that in library literature critical thinking and information literacy are often combined, merged, entangled and subsumed within each other. What does this mean for academic instruction and information literacy librarians who are working to teach students the requisite information literacy skills? If critical thinking and information literacy outcomes become blended at academic institutions, how should librarians react? Is a close relationship between the two concepts in the form of a combined outcome to be applauded and supported, or should such unions be avoided at all costs? The following chapter will look at critical thinking, how librarians perceive its relationship to information literacy, and what useful strategies can result when these two concepts are combined.

To set the stage a few of the major psychological and philosophical theories of critical thinking will be briefly noted. In order to gauge our profession's understanding of critical thinking and its relationship to information literacy, a survey of library literature will be performed. The more rigorous articles from this survey will then be discussed in order to discern the range of positions librarians have taken on the relationship of these two concepts. Moving from theory to practice, the next section will showcase five different models of campus-wide learning outcomes that combine critical thinking and information literacy into one outcome. A special note will be made of unique features of each of the combined outcomes, in the hopes that readers will find that one or more of the models resonate with the learning outcomes at their own institution. Next a recent survey of almost 200 librarians will be analyzed to discover librarians' feelings around the idea of a merged critical thinking and information literacy outcome, as well as the perceived benefits and liabilities of such a merger. Finally, for those information literacy librarians considering adopting strategic partnerships (such as combining critical thinking and information literacy at their campus), some practical advice will be given.

CRITICAL THINKING

Initially one factor that makes this line of inquiry particularly tenuous is that currently in the field of education there is no agreed upon definition of critical thinking. As Jennifer Reed succinctly states in her 1998 dissertation;

> A review of literature in the field of critical thinking revealed a general lack of consensus on how critical thinking is best defined, on what critical thinking skills can and should be taught, and on determining the most appropriate framework for this teaching. As a whole, educational reformers have not even agreed on terminology. ..The relationship among "critical thinking," "higher order thinking," "thinking skills" and other terms such as "informal logic," "informal reasoning," "problem solving," "argumentation," "critical reflection," "reflective judgment," and "metacognition" have further complicated the issue. Other areas of disagreement and concern include (a) the extent to which critical thinking is subject specific, (b) differences between expert and novice thinking in a discipline and the extent to which novices can learn to think more like experts, (c) dif-

> ficulties in separating higher order and lower order thinking skills for instructional purposes, and (d) whether critical thinking should be considered a process or a set of skills (Reed 1998, 28).

Another reason there is controversy in defining critical thinking is that in the later part of the 20th century definitions of critical thinking converged on educators from two separate disciplines—philosophy and psychology (Gibson 1995, 28). Many philosophical definitions of critical thinking tend to be based on or related to the concept of informal logic, while psychological definitions are most often based on theories of cognition or neuroscience.

The lack of consensus on a definition of critical thinking has not stopped philosophers, psychologists, and educators from attempting to pin it down. The short discussion below is not meant to thoroughly examine the breadth and nuances of the critical thinking landscape, but rather it is meant to touch upon a few of the major definitions in order to give the reader an idea of their scope and range.[1] For example, according to the philosopher Robert Ennis (1962, 83), "As a root notion *critical thinking* is taken to be *the correct assessing of statements.*" Ennis (Table 6.1) goes on to further refine this definition in logical terms with twelve aspects of critical thinking (84).

TABLE 6.1
Ennis' twelve aspects of critical thinking

1. Grasping the meaning of a statement
2. Judging whether there is ambiguity in a line of reasoning
3. Judging whether certain statements contradict each other
4. Judging whether a conclusion follows necessarily
5. Judging whether a statement is specific enough
6. Judging whether a statement is actually the application of a certain principle
7. Judging whether an observation statement is reliable
8. Judging whether an inductive conclusion is warranted
9. Judging whether the problem has been identified
10. Judging whether something is an assumption
11. Judging whether a definition is adequate
12. Judging whether a statement made by an alleged authority is acceptable

Another philosopher, Richard Raul, moved beyond informal logic into the realm of metacognition when he stated;

> The idea of critical thinking, stripped to its essentials, can be expressed in a number of ways. Here's one: critical thinking is the art of thinking about thinking in an intellectually disciplined manner. Critical thinkers explicitly focus on thinking in three interrelated phases. They *analyze* thinking, they *assess* thinking, and the *improve* thinking (as a result). (Paul 2005, 28)

Paul also defines the intellectual traits that a critical thinker possesses as, intellectual integrity, intellectual humility, fair-mindedness, intellectual perseverance, confidence in reason, intellectual courage, intellectual empathy, and intellectual autonomy (33).

In the late 1980s Peter Facione conducted a Delphi study to find out if there was a consensus on a definition of critical thinking in higher education and to see how critical thinking might best be taught and assessed. The Delphi panel consisted of forty-six experts—philosophers, educators and social scientists and their definition of critical thinking went even farther into the affective realm by positing the dispositions of a critical thinker. It reads in part;

> The ideal critical thinker is habitually inquisitive, well-informed, trustful of reason, open-minded, flexible, fair-minded in evaluation, honest in facing personal biases, prudent in making judgments, willing to reconsider, clear about issues, orderly in complex matters, diligent in seeking relevant information, reasonable in the selection of criteria, focused in inquiry, and persistent in seeking results which are as precise as the subject and the circumstances of inquiry permit (Facione 1990, 3).

CRITICAL THINKING IN LIBRARY LITERATURE

With these, and many other definitions of critical thinking swirling around academe for at least forty or fifty years, what does library literature have to say about the relationship of critical thinking (any definition) and information literacy? At first blush, a lot. Searching indexes to library literature (Library Literature and Information Science, LISTA, and ERIC) hundreds of hits are found with the query *"information literacy" and "critical thinking"*. Unfortunately if one is looking for a rigorous mapping of critical

thinking to the ACRL Information Literacy Competency Standards for Higher Education (ACRL Standards) one will be disappointed in the search results. Craig Gibson (1995, 27) notes, "Interest in critical thinking is not new among librarians. Even though library literature abounds with references to critical thinking, such references often lead only to brief discussions with imprecise definitions of the term." Regarding the ACRL Standards, Dean Cody (2006, 404) insightfully notes that "ACRL dances around the issue of defining critical thinking; however it recognizes its importance." The author would add that ACRL also dances around the issue of how information literacy is related to critical thinking. The vast majority of the articles found by the author in library literature typically would also assert, without evidence, that information literacy was related in some natural and intimate fashion to critical thinking and then launch into an example how "critical thinking information literacy skills" were taught at a certain university. So many of the articles were of this ilk that the author at first doubted his searching skills and so set out to confirm if the above generalizations about the literature on the relationship between critical thinking and information literacy might be true.

Library Literature and Information Science Full Text, LISTA, ERIC, and Education Full Text were searched on the subject terms "critical thinking" and "information literacy."[2] Two-hundred and twenty one articles were found that matched these search criteria. After eliminating the duplicate articles 199 unique articles remained. In order to have a confidence level of 95% and a confidence interval of 10% a random sample of 65 articles was chosen from this set to be tested.

The first question asked of the articles was whether "information Literacy" was defined. Twenty-nine (45%) of the articles contained no definition of information literacy. Twenty-two (34%) of the articles contained a minimal one to two sentence definition, while the remaining 14 (22%) gave more that a minimal definition. Thirty-one (48%) of the articles mentioned a set of existing information literacy standards. Most of the articles with an academic focus mentioned either the ACRL or earlier ALA definitions of information literacy, while a few also referred to the British (CILIP), Australian or New Zealand (CAUL or ANZIIL), or the Alexandria definitions. The rest of the articles that mentioned a set of standards were either K–12 focused and so mentioned the AASL or Big 6 standards, or mentioned institutions that developed home grown standards on their own. As "information literacy" is a concept conceived of

by librarians and ubiquitous now in library cultures, perhaps it is reasonable to assume extensive definitions of information literacy would not be needed.

The next question asked of the articles was if critical thinking was defined. All of the articles were indexed on the subject term "critical thinking" so a minimal definition of the term might be expected. Nearly three-quarters of the articles in the sample (48 or 74%) contained *no definition* of critical thinking. While the term "critical thinking" was mentioned in passing in this portion of the sample, it was left up to the reader to imagine what this concept might be. Eight articles (12%) had a bare minimum of a definition—usually consisting of one or two sentences. The remaining 9 (14%) had a definition that went beyond two sentences. The 14 articles that did mention an existing model referred either to the major models mentioned above (Ennis, Paul, or Facione) or to "homegrown" models developed by the authors or their institutions.

This survey confirms the author's suspicions as well as Gibson's observation above to lack of rigor in librarians' discussions and explorations of the concept of critical thinking in regards to information literacy. The articles in the survey were indexed both under the subject terms "critical thinking" and "information literacy". For this reason it could be expected the set of results would contain a fair amount of articles that would go beyond a shallow discussion of both of these issues and the relationship between the two. However only 22% of the articles went beyond a minimal definition of information literacy, and only 14% did the same for the concept of critical thinking.

CRITICAL THINKING AND INFORMATION LITERACY

Much of the library literature that does focus on the subject of critical thinking and its relationship to information literacy tends to be overly optimistic, imagining linkages in spite of the lack of much real evidence.[3] Rebecca Albitz (2007,100) notes that some of the criteria in classical critical thinking models, such as Ennis', imply a critical thinker would need to know research skills, but nowhere in the definition of critical thinking is this relationship made explicit. Many other writers make the point that evaluating information sources is an obvious example of critical thinking (see McCormick 1983, 340; Bodi 1988, 150; and Herro 2000, 556). There are, however, two articles that take a more rigorous and sustained look at critical thinking and its relationship to information literacy.

Craig Gibson's thoughtful 1995 article, *Critical Thinking: Implications for Instruction*, is a great primer on the subject of critical thinking and information literacy instruction. In it he describes the state of critical thinking, controversies within the movement, and assessment of critical thinking. He mentions the "back-to-basics" movement within library instruction that came about as a reaction to the development of the concept information literacy and its attempt to link itself to critical thinking. Members of this movement, such as Cheryl LaGuardia (1992,16) held that what should best be taught in library instruction sessions are practical skills rather than conceptual skills that fall under the rubric of critical thinking. Gibson remarks that "this is a very undesirable scenario for librarians who wish to be part of the educational mission of their institutions" (Gibson 1995, 31). He address many of the issues librarians face when teaching critical thinking in library sessions and asserts, "Learning to question well, reason out research problems, predict with confidence the location (or even the existence) of information, as well as evaluating the information found—these are the core skills" (33).

Dean Cody, in his article "Critical Thoughts on Critical Thinking" (2006, 404), notes that ..." a survey of library literature reveals a lack of agreement among librarians upon a definition of critical thinking," and he goes on to state that "Librarians *acknowledge* that there is little agreement concerning the definition of critical thinking" (405; italics added by author). He would appear to be an ally of the back-to-basics movement alluded to by Gibson above. Even though he is in a minority opinion among librarians, he makes a logical case for shunning a union between critical thinking and information literacy. Because there is no agreed upon definition of critical thinking, he argues that our claims to be teaching it via information literacy instruction are baseless. An individual's "thinking" is hard enough to measure, and many definitions of critical thinking relate it to attitudes and dispositions of the thinkers. How could we teach and assess if our students were thinking critically, especially within our normal parameters of the 50-minute library session? Taking a behaviorist approach he argues that in order to measure student learning outcomes we need to look only at the outputs of student's research work, such as successful database searches. He suggests that, "...the new criterion for evaluating students' work is control. Students need to exhibit control over database search interfaces in order to attain relevant retrieval, regardless of their attitude" (Cody 2006, 406).

CRITICAL THINKING, INFORMATION LITERACY AND LEARNING OUTCOMES

In library literature many librarians have given their often uncritical support to the union of critical thinking and information literacy. But have these two concepts been successfully linked in practice, and how has this merger fared? A few colleges and universities in the United States have created campus-wide outcomes that join critical thinking and information together. In the discussion below five models that combine critical thinking and information literacy will be discussed, and the unique features of each model will be highlighted.

These liaisons have taken a variety of forms. At Portland State University the "Critical and Creative Thinking Learning Outcome" (Table 6.2) looks suspiciously like a curt definition of information literacy (Portland State 2011).

While the title of the outcome does not explicitly state the term information literacy, many of the words in the body of the outcome (italicized in Table 6.2) reflect information literacy goals. The outcome is terse and rather broad, and comingles critical thinking outcomes with those of information literacy. The draft "Inquiry and Critical Thinking Outcome" at the University of Nevada (Table 6.3) is written in a similar vein (University of Nevada 2008).

While this outcome is more fully articulated than the one from Portland State University, the title still does not use the term information literacy and the information literacy portions of the outcome are interspersed with those of critical thinking.

The "Analysis, Problem Solving, and Information Literacy Outcome" from Spokane Falls Community College (Table 6.4) represents a slightly different take on a merged outcome (Spokane Falls 2011).

Information literacy is specifically mentioned in the title, while critical thinking is implied only by the mention of two components of criti-

TABLE 6.2
Portland State University Critical and Creative Thinking Outcome

Students will develop the *disposition and skills to strategize, gather, organize*, create, refine, *analyze, and evaluate the credibility of relevant information* and ideas

TABLE 6.3
University of Nevada

(Information literacy components italicized).

2. Inquiry and Critical Thinking Outcome—Use qualitative and quantitative reasoning and *appropriate research methods to guide the collection*, analysis, and use of *information*

Competence in the Inquiry and Critical Thinking outcome is defined by the following objectives:

1. Analyze problems, articulate questions or hypotheses, *and determine the need for information.*
2. *Access and collect the needed information from appropriate primary and secondary sources.*
3. Use quantitative and qualitative reasoning, including the ability recognize assumptions, draw inferences, make deductions, and interpret information to analyze problems in context and draw conclusions.
4. Recognize complexity of problems, tolerate ambiguity when appropriate and identify different perspectives from which problems and questions can be viewed.
5. Evaluate and report on conclusions, including discussing the basis for and strength of findings, and *identify areas where further inquiry is needed.*
6. Use results of inquiry and analysis to make judgments and guide actions.

cal thinking, analysis and problem solving. The information literacy and critical thinking components are interspersed, and like the University of Nevada's outcome the larger "ability" is parsed out into smaller, more easily assessed "learning outcomes".

Laney College in Oakland California (Table 6.5) has conceived of a slightly different form for their combined outcome (Laney College 201).

They have repacked their general education outcomes, often organized by courses, into more conceptual categories. Outcomes from the mathematics and computer literacy courses are combined with information literacy in the "Critical Thinking and Information Literacy" outcome. Each of them however remains a distinct unit within the more general outcome. The University of Maryland (Table 6.6) takes this segregation to the extreme in their bifurcation of critical thinking into undergraduate and graduate abilities (Office of Outcomes 2006). While both the undergraduate and graduate abilities are labeled "critical thinking" the undergraduate proficiency is clearly the classic ACRL Standards' definition of

TABLE 6.4
Spokane Falls Community College Analysis, Problem Solving and Information Literacy

(Information literacy components italicized).

Ability

- Students will *access, evaluate and apply information from a variety of sources* and in a variety of contexts.

Learning Outcomes

- A. Make accurate observations, isolate issues, and formulate questions
- B. *Recognize the need for both quantitative and qualitative information.*
- C. *Identify, locate, and access potential sources of information.*
- D. *Evaluate information on the basis of its origin, viewpoint, currency, relevance, and completeness.*
- E. Analyze information using available technologies and analytical methods.
- F. Make justifiable inferences and suggest viable solutions/interpretations.
- G. Evaluate solutions/interpretations for validity and appropriateness, and make necessary adjustments.
- H. *Use information ethically.*

TABLE 6.5
Laney College General Education Outcomes

(Information literacy components italicized).

Critical Thinking and Information Literacy

A. Solve quantitative problems using numerical, graphical, and algebraic methods. *(Area 4b: Mathematics)*

B. Demonstrate proficiency in using a computer and computer applications, including the Internet, to accomplish personal, academic, and/or professional tasks. *(Area 4c: Computer Literacy)*

C. *Locate and cite appropriately information from a variety of sources (books, databases, internet, primary sources) in various formats (print, online, multimedia); evaluate information for relevance and reliability, and incorporate it effectively into written work. (Information Competency)*

information literacy, while the graduate ability more closely maps to classical definitions of critical thinking.

MERGING OUTCOMES—WHAT DO LIBRARIANS THINK?

Much of library literature assumes, in a hopeful manner, that information literacy and critical thinking are somehow easily and meaningfully merged. At some academic institutions, like those showcased above, campus-wide learning outcomes have been created that merge these two concepts in intriguing ways. Regardless of whether this is a meaningful merger of these two concepts, or a mere opportunistic or strategic conflation, it is a pragmatic way librarians and other faculty at a few institutions have seen fit to acknowledge information literacy at their institution. But what does the rest of our profession think about such mergers? What are the benefits and the challenges of such a pact?

In mid March 2010, academic librarians were surveyed in order to discover how they felt about the merger of critical thinking and information

TABLE 6.6
University of Maryland

(Information literacy components italicized).

Within the School of Undergraduate Studies, proficiency in critical thinking is demonstrated through the through the ability to:

- *Determine the nature and extent of information needed;*
- *Evaluate information and sources critically;*
- *Incorporate information into a personal knowledge base;*
- *Support positions with credible reasoning and evidence;*
- *Use information effectively to accomplish a specific purpose; and*
- *Use information ethically and legally.*

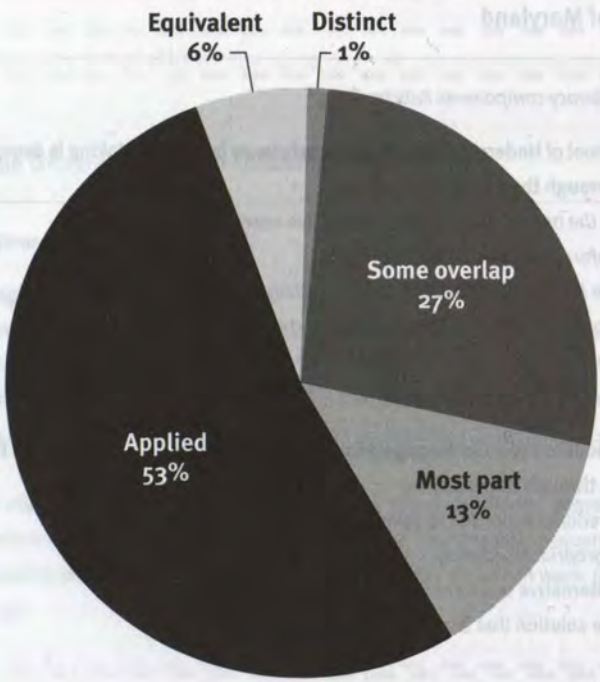
Within the Graduate School of Management and Technology proficiency in critical thinking is demonstrated through the ability to:

- Develop credible responses to complex questions;
- *Gather appropriate evidence;*
- Evaluate alternative solutions with respect to evidence; and
- Choose the solution that best fits the evidence.

literacy into one outcome. The survey asked them to envision working with a combined outcome and to reflect on what advantages and disadvantages might arise from such a merger. The survey was posted to the Information Literacy Listserv and almost 200 librarians responded. No effort was made to gather a statistically valid sample of academic librarians and the survey was open to anyone who wanted to reply, so no statistically meaningful inferences can be made from the data. But many of the author's initial reflections on the pros and cons of merging the two outcomes into one were confirmed, and many new ideas surfaced as well.

The first question in the survey asked for the librarians' opinions about the relationship of critical thinking to information literacy. Neither critical thinking nor information literacy were defined at this point of the survey, as it was hoped that each librarian would rely on his or her own internalized impressions of these concepts in order to answer the first question. Five responses were given from which to choose, ranging from

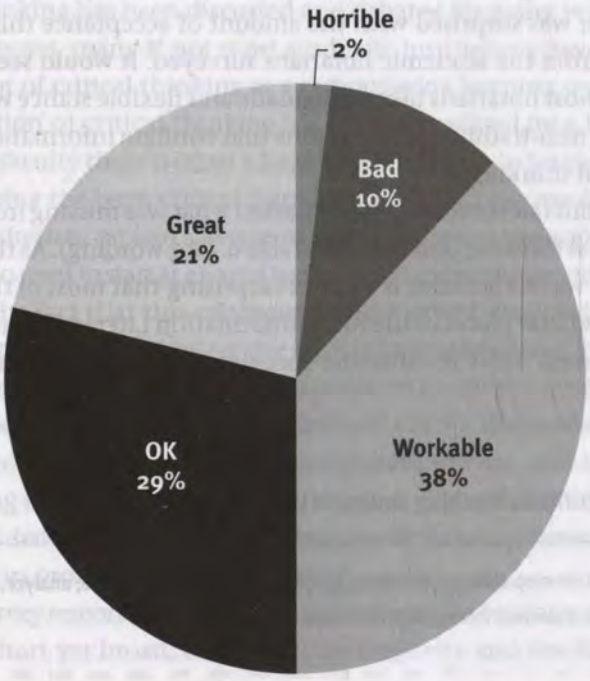
FIGURE 6.1
Information Literacy's Relationship to Critical Thinking



"Information literacy is distinct from critical thinking", to "Information literacy *is* critical thinking".[4] A small minority of those surveyed chose either one of these two extreme responses. Only 1% (3) said that the two outcomes were totally distinct, while 6% (12) agreed that they were exactly the same. 27% (54) said that there was some overlap between the two, and 13 % (25) agreed that information literacy was for the most part, critical thinking. The majority of respondents, 53% (104), thought that information literacy was critical thinking applied to information. In spite of the fact that library literature has not provided us with a wealth of rigorous articles clearly linking critical thinking and information literacy, it seems that academic librarians *feel* there is a strong and obvious relationship between information literacy and critical thinking.

A slightly modified version of the Portland State University "Critical and Creative Thinking" outcome above was used as an example outcome in the rest of the survey, as this definition merged part of each of the concepts

FIGURE 6.2
Affective Reaction to Example of Merged Outcome



in a relatively concise manner (see Table 6.7 for the exact wording of the definition used in the survey).

Each respondent was to imagine that she or he worked as an instruction librarian at a four-year college that had the outcome above as the only campus-wide outcome for student learning. Hoping again to get a visceral and emotional response, the second question asked, "As an instruction librarian, concerned about teaching information literacy to students, your reaction to this outcome and its definition would be ..." Then a range of five possible responses were given that ranged from "horrible" to "great".

About one-eighth of the respondents felt extremely negative about the example outcome. 2% (4) said that it was horrible and as an instruction librarian they wouldn't be able to work with it at all, while 10% (19) said that it was bad—perhaps it wasn't the worst outcome they could imagine but it was pretty close. However the vast majority of the librarians surveyed had more positive feelings towards this entwined outcome. 38% (75) thought they could work with this definition, and 50% (98) of those surveyed were very positive about it—29% (57) thought it was "pretty much OK" and 21% (41) thought it was a great outcome. Again, even with an outcome that was short and obviously not overly descriptive of critical thinking or information literacy, librarians responded positively. The author was surprised with the amount of acceptance this outcome garnered from the academic librarians surveyed. It would seem to indicate that most librarians take a pragmatic and flexible stance when faced with such non-traditional definitions that conflate information literacy and critical thinking.

The third question of the survey asked what was missing from the survey's critical thinking outcome (see Table 6.7 for wording). As the survey's definition was rather terse it was not surprising that most of the respondents noted that pieces of the ACRL Information Literacy Standards were not addressed. Most notably the specifics of finding information; the

TABLE 6.7
Wording of Critical Thinking Outcome Used in Survey

"Students will develop skills to strategize, gather, organize, create, refine, analyze, and evaluate the credibility of relevant information and ideas."

ethical and legal uses of information; and that the information found needs to be applied or used in some manner. Many others noted that the definition wasn't clear or well written, it was too broad and didn't show examples of actual outcomes, and that it wasn't really a definition of critical thinking. When one appreciates that this definition was an artifact of years of meetings of diverse faculty from across the Portland State campus, many of these defects become more understandable. The politics of creating such campus-wide outcomes on any campus often lead to such imprecise definitions as seen from the point of view of instruction librarians. The real question for an instruction librarian concerned with the success of an information literacy programs is, "What level of trade off is acceptable in order to get the majority of my information literacy goals met?"

The forth survey question asked, "What do you see as the advantages of having the critical thinking outcome (in Table 6.7), but no articulated information literacy outcome at all." A great many librarians responded that just being called a "critical thinking" outcome was a great plus, even if most of the text of the outcome described information literacy as well. This renaming helps to move information literacy from mere skills to the more conceptual level of thinking and reasoning. Because the concept of critical thinking has been discussed and debated for many years on colleges campuses, many if not most academic institutions have accepted some flavor of critical thinking as a campus-wide learning outcome. As the definition of critical thinking has been articulated by a local community of faculty there is often a huge amount of buy-in for the concept. Anyone using the term critical thinking in an outcome would have no need start afresh to explain a new term (like information literacy) and there would be no need to start at ground level to build consensus around it across campus. The fact that this outcome to some extent encapsulates information literacy, without using the term information literacy or library jargon, could make it much easier to promote on many campuses. This would potentially free up a lot of time and energy librarians currently spend to educate and promote a concept new, foreign, and sometimes threatening to teaching faculty. One librarian responded, "Information literacy still draws a complete blank among non-librarian academics, whereas all professors promote critical thinking."

The survey respondents noted another advantage of such an outcome—that it is short yet broad, and allows for creativity and flexibility in its

interpretation by librarians. Librarians would be able to rationalize and adapt many different models of information literacy instruction under the aegis of this somewhat ambiguous outcome. As one respondent noted, "This is broadly inclusive and may actually provide the assertive librarian free reign. I don't see anything here preventing the librarian from pursuing an information agenda with specific, measurable outcomes." With the outcome recognized as critical thinking, the whole campus would "own" the outcome, not just librarians. Faculty across disciplines already see critical thinking as germane to all of their students, and it would be much easier to build librarian-faculty partnerships around such an outcome.

The fifth survey question asked, "What do you see as the disadvantages of having the above Critical Thinking outcome and no Information Literacy outcome at all?" The respondents overwhelmingly lamented the lack of an explicit tie-in to the library. Instead of spending our time and energy educating faculty to the existence of, and the need for, information literacy, many thought that the battle now would be showing that the library and librarians can and do teach critical thinking. While many respondents thought there were no disadvantages with the outcome as stated, others reiterated their concerns about what was missing in this definition from question three above. They mentioned it was too broad, unclear, and seemed unmeasurable as written. A few respondents also implied that it was important that students know that what they are learning is information literacy (not critical thinking) and somehow with the outcome defined as critical thinking this would not be possible. A few also noted that many accrediting bodies now assess for information literacy at colleges, and the lack of an outcome explicitly called information literacy could make it harder to prove that information literacy is indeed valued and assessed at an institution.

STRATEGIC PARTNERSHIPS AND THE FUTURE OF INFORMATION LITERACY PROGRAMS

Library literature shows us that there is a strong current of sentiment that links critical thinking to information literacy, even though in most articles critical thinking is not well defined, if at all. Many of the articles written about the relationship of these two concepts vaguely and hopefully hint that the linkages between the two are strong and obvious. On a practical level, over the last forty years most academic institutions have acknowledged critical thinking as an outcome of student learning, and many have

embraced some form of critical thinking as a campus wide goal for all of their students. What does this mean for future librarians charged with integrating information literacy into their campuses?

Critical thinking can be a "strategic partner" in achieving our goals as information literacy librarians. Information literacy has not been as broadly accepted as a campus-wide outcome for a variety of reasons, but there is evidence that, at some institutions at least, information literacy has been creatively combined with critical thinking. The author has been involved with the creation and revision of such hybrid outcomes at two institutions—Spokane Falls Community College and Portland State University. The process of creating campus-wide outcomes is often long, intense, and intensely political. For pragmatic reasons, at least at the two schools mentioned above, over the course of long discussions with dozens of faculty groups, information literacy became merged with critical thinking into one combined outcome.

For many of the librarians involved in these processes, the author included, the question then arises—to what extent can this resulting outcome be considered a success or a failure? Over the course of creating these campus-wide outcomes this "new" concept of information literacy and the library's role in teaching it became clear to many faculty, and teaching faculty and librarians had many fruitful discussions as to its merit and place amongst all the other literacies swirling around academe today. If our goal as instruction librarians is to teach our students (and faculty) the information skills and concepts they need to become better scholars and ultimately better citizens, then surely this can be done under the aegis of such a combined goal. Many survey respondents pointed out that currently librarians spend great amounts of energy on introducing and advocating for information literacy. By partnering with critical thinking advocates on campus, the energy being spent in getting the term "information literacy" recognized and accepted by an often over burdened and over assessed faculty can be channeled elsewhere. One respondent remarked, "Well, you have info literacy as an outcome—if political factors keep you from having one labeled as such, you've achieved it anyway."

When outcomes are forged by committees over long periods of time all of what we as academic librarians know to be information literacy will surely not ultimately end up reflected in the final draft. All instruction librarians involved with information literacy programs have numerous goals for their programs—the question then becomes will we only

accept "perfection" (one-hundred percent of our goals being accepted), or "good enough"?

From the survey results above it is obvious that many librarians feel that a learning outcome that combines information literacy with critical thinking is at least "good enough". While it is not a perfect outcome many of the survey comments suggest the challenges created by merging the two are not insurmountable. Many librarians even consider strategically partnering around such an outcome a success. At institutions where classic educational and philosophical definitions of critical thinking have been adopted information literacy is often an implied requisite, and it would be easy for librarians to link these two concepts. For example, following Ennis' definition of critical thinking, without adequate research and evaluative skills how could a student judge"...whether a statement made by an alleged authority is acceptable" (Ennis 1962, 84)? If Facione's definition of critical thinking were adopted at an institution information literacy skills would definitely be required in order for a student to be "... diligent in seeking relevant information" (Facione, 1990, 3).

Ultimately however, it comes down to each individual librarian and the environment and culture at each institution. At any institution where critical thinking/information literacy is an accepted campus-wide outcome faculty in every discipline, not just the library, will need to customize and adapt the general outcome to make sense in disciplinary terms. As Joanne Kurfiss writes in *Helping Faculty Foster Students' Critical Thinking in the Disciplines* (1989, 42) , " In spite of clear difference among the disciplines, common elements of reasoning exist. Critical thinking in all disciplines involves both discovery and justification of ideas." Engineering professors will call their application "problem solving", Mathematicians "logic", and English faculty will be teaching varieties of literary criticism like "post-modernism", "reader response" or "post-colonialism". Just as other faculty project their own disciplines' definitions onto critical thinking, librarians too can operationalize critical thinking in the realm of research as "information literacy".

We know our students need information literacy skills to succeed in their inquiry and exploration in academe, and to prosper as informed professionals and citizens in the 21st century. And we know too that librarians will be central in delivering these important skills. At many institutions we may have a campus-wide outcome for information literacy; at others we may only be able to project information literacy onto other goals, such as critical thinking. In merging these concepts we have seen

that some meaning has been made, but more importantly we also realize that finding strategic allies on campus, like those groups promoting critical thinking, can be a viable strategy for pragmatically reaching our long term goals as information literacy librarians.

APPENDIX A:
Critical Thinking /Information Literacy Survey

1. In your opinion which sentence below best describes Information Literacy's relationship to Critical Thinking?
   A. Information literacy is distinct from critical thinking.
   B. Information literacy has some overlap with critical thinking.
   C. Information literacy is, for the most part, critical thinking.
   D. Information literacy is critical thinking applied to information.
   E. Information literacy is critical thinking.

For the next few questions imagine you have just been hired at an instruction librarian at a 4-year college. They only have one college-wide outcome for their students—"Critical Thinking". They define "Critical Thinking" as:

"Critical Thinking Outcome: Students will develop skills to strategize, gather, organize, create, refine, analyze, and evaluate the credibility of relevant information and ideas."

2. As an instruction librarian, concerned about teaching information literacy to students, your reaction to this outcome and its definition would be most like:
   A. ARGH! I won't be able to work with this definition at all.
   B. It could be worse (but not much worse).
   C. I can see working with this definition.
   D. This is pretty much OK.
   E. WOW! This couldn't be better.
3. As an instruction librarian, concerned with information literacy, what is missing in your opinion from the above definition? *Text box...*
4. What do you see as the advantages of having the above definition of Critical Thinking outcome and no Information Literacy outcome at all? *Text box...*
5. What do you see as the disadvantages of having the above definition of Critical Thinking outcome and no Information Literacy outcome at all? *Text box...*
6. Anything else you would like to mention in regards to critical thinking and information literacy? *Text box...*

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Notes

1. For short overviews of critical thinking in education see:
   Bailin, S. 1994. "Critical Thinking: Philosophical Issues." In *The International Encyclopedia of Education 2nd ed.*, edited by Torsten Husen and T. Neville Postlethwaite, 1204–1208. Oxford: Pergamon.
   Schrag, Francis. 1992. "Critical Thinking." In the *Encyclopedia of Educational Research 6th ed.*, edited by Marvin C. Alkin, 254–256. New York: Macmillan.
   See also Cassel, Jeris F. and Robert J. Congleton. 1993. *Critical Thinking an Annotated Bibliography*. Metuchen, N.J.: Scarecrow Press.
2. The database Library Literature and Information Science Full Text did not have a subject term for "information literacy" so it was searched in this database as a keyword phrase.
3. For a bibliography see Ellis, Erin L. 2008. "The Evolution of Critical thinking Skills in Library Instruction, 1986 – 2006: A Selected and Annotated Bibliography and review of Selected Programs." *College & Undergraduate Libraries* 15: 5–20.
4. For the whole survey see Appendix A.